

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

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Listing of claims:

1. (Currently Amended) A hybrid fiber/coax network, comprising:

a head end;

at least one optical distribution node coupled to the head end over at least one

fiber optic link;

a plurality of coaxial cable links coupled to each of the at least one optical distribution node;

a transmitter, disposed at the optical distribution node, that is response to signals from the plurality of coaxial cable links, that converts analog signals to baseband digital signals and that transmits the baseband digital signals to the head end over the at least one optical link; and

a receiver, disposed at the head end, that is responsive to the baseband digital signals from the transmitter and that converts the digital signals to analog signals for the head end; and

wherein the transmitter incorporates data from a status monitor in the baseband digital signal transmitted to the head end.

2. (Original) The network of claim 1, wherein the transmitter includes a analog to digital converter that is operable to generate at least 850 Megabits per second.

3. (Original) The network of claim 1, wherein the transmitter separately converts signals from the plurality of coaxial cables into separate, n-bit signals, and combines the separate n-bit signals into a serial data stream.

~~4.~~ (Canceled)

5. (Currently Amended) ~~The network of claim 1,~~ A hybrid fiber/coax network, comprising:

a head end;

at least one optical distribution node coupled to the head end over at least one fiber optic link;

a plurality of coaxial cable links coupled to each of the at least one optical distribution node;

a transmitter, disposed at the optical distribution node, that is response to signals from the plurality of coaxial cable links, that converts analog signals to baseband digital signals and that transmits the baseband digital signals to the head end over the at least one optical link; and

a receiver, disposed at the head end, that is responsive to the baseband digital signals from the transmitter and that converts the digital signals to analog signals for the head end; and

wherein the transmitter incorporates bit error rate link performance data into the baseband digital signal transmitted to the head end.

6. (Currently Amended) ~~The network of claim 1,~~ A hybrid fiber/coax network, comprising:

a head end;

at least one optical distribution node coupled to the head end over at least one fiber optic link;

a plurality of coaxial cable links coupled to each of the at least one optical distribution node;

a transmitter, disposed at the optical distribution node, that is response to signals from the plurality of coaxial cable links, that converts analog signals to baseband digital signals and that transmits the baseband digital signals to the head end over the at least one optical link; and

a receiver, disposed at the head end, that is responsive to the baseband digital signals from the transmitter and that converts the digital signals to analog signals for the head end; and

wherein the transmitter combines signals from the plurality of coaxial cables prior to converting the signals to baseband digital signals.

7. (Currently Amended) A transmitter for an optical distribution node, the transmitter comprising:

at least one bandpass filter that is operable to select a portion of the frequency spectrum that is associated with return path signals for a hybrid fiber/coax network;

at least one analog to digital converter, responsive to the at least one bandpass filter, that creates baseband digital data from the return path signals;

at least one multiplexer, responsive to the at least one analog to digital convert, that creates a serial data stream from the baseband digital data from the at least one analog to digital converter; and

an optical transmitter, responsive to the at least one multiplexer, that is operable to transmit the serial data stream to a head end as a digital baseband signal; and

a monitor that monitors the operation of the optical distribution node and that creates status data for transmission to a head end in the serial data stream.

~~8.~~ (Canceled)

9. (Original) The transmitter of claim 7, wherein the bandpass filter include a pass band in the range from 5 to 42 MHZ.

10. (Original) The transmitter of claim 7, wherein the at least one analog to digital converter includes one analog to digital converter for each coaxial link associated with the transmitter.

11. (Original) The transmitter of claim 7, wherein the at least one multiplexer comprises:

one first stage multiplexer for each coaxial link associated with the transmitter;

and

an additional multiplexer coupled to the output of each of the first stage multiplexers.

12. (Currently Amended) ~~The transmitter of claim 7, and further including A~~  
transmitter for an optical distribution node, the transmitter comprising:

at least one bandpass filter that is operable to select a portion of the frequency spectrum that is associated with return path signals for a hybrid fiber/coax network;

at least one analog to digital converter, responsive to the at least one bandpass filter, that creates baseband digital data from the return path signals;

at least one multiplexer, responsive to the at least one analog to digital convert, that creates a serial data stream from the baseband digital data from the at least one analog to digital converter; and

an optical transmitter, responsive to the at least one multiplexer, that is operable to transmit the serial data stream to a head end as a digital baseband signal; and

bit error rate link performance data that is ~~couple~~ coupled to the at least one multiplexer to be included in the serial data stream.

13. (Currently Amended) A method for processing data in a return path of a hybrid fiber/coax network, the method comprising:

receiving analog, upstream data at an optical distribution node from at least one coaxial cable link;

generating baseband digital data from the analog, upstream data;

creating a serial data stream including the digital data; and

driving a digital laser to transmit the digital data in a baseband digital format to a head end of the network; and

monitoring the operation of the optical distribution node to create status data for transmission to a head end in the serial data stream.

14. (Original) The method of claim 13, wherein generating digital data comprises sampling the analog, upstream data at a rate of at least 850 Megabits per second.

15. (Original) The method of claim 13, wherein creating the digital data stream comprises multiplexing at least one n-bit digital data stream into a serial data stream.

16. (Original) The method of claims 13, wherein creating the digital data stream comprises multiplexing a number of n-bit digital data streams into a serial data stream.

~~17.~~ (Cancelled)

18. (Currently ~~Amended~~) A receiver for a digital data return path of a head end in a hybrid fiber/coax network, the receiver comprising:

an optical receiver that is operable to receive a serial, digital baseband signal from an optical link;

at least one demultiplexer, responsive to the optical receiver, that demultiplexes the digital baseband signal;

at least one digital to analog converter, responsive to the at least one demultiplexer, that creates analog signals for the head end; and

at least one filter that is operable to compensate for quantization effects in the frequency spectrum that is associated with return path signals for a hybrid fiber/coax network;  
and

wherein the at least one demultiplexer removes status data for the head end from the serial baseband signal.

~~19.~~ (Cancelled)

20. (Original) The receiver of claim 18, wherein the at least one digital to analog converter includes one digital to analog converter for each coaxial link associated with the receiver.

21. (Previously Presented) The receiver of claim 18, wherein the at least one demultiplexer comprises:

one first stage demultiplexer for each coaxial link associated with the receiver;  
and  
an additional demultiplexer coupled to an input of each of the first stage demultiplexers.

22. (Original) The receiver of claim 18, wherein the at least one demultiplexer removes bit error rate data from the serial baseband signal.

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